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**Name of Organization:** Wisconsin Department of Natural Resources

**Type of Organization:** State

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**Project Title:** N. Pike Habitat Protection and Restoration - Green Bay

**Project Category:** Habitat (Ecological) Protection and Rest

**Rank by Organization (if applicable):** 1

**Total Funding Requested (\$):** 136,842 **Project Duration:** 2 Years

**Abstract:**

This project will continue our efforts to protect, enhance and restore northern pike wetland spawning and rearing habitat within the entire western shore of Green Bay coastal zone. During the two year time period encompassed by this project, we will focus our efforts on two watersheds where action is critically needed due to past and ongoing wetland habitat loss.

This project will restore wetland spawning habitat. It will help guide priority nonpoint source pollution projects. It will enable protection of currently productive wetland habitat.

Project objectives include: 1) wetland habitat restoration, 2) habitat assessment, and 3) northern pike production assessment.

Many restoration projects fail to provide a well-planned assessment of the habitat restoration techniques applied. We have attempted to address that problem by including in this project what we hope is adequate assessment. The Northern Pike Production Assessment aspect of this project is intended to identify and document numerical changes in reproduction which occur as a result of habitat restoration efforts. We will also determine the success of restoration project techniques applied according to defined criteria.

The need for this project is demonstrated by the fact that approximately 70% of Green Bay's west shore wetlands have been lost due to a combination of human and non-human factors. Much of this wetland provided fish spawning and rearing habitat. Tributary stream wetland habitat has also been lost. Green Bay's ecosystem has been severely disrupted by wetland habitat loss and other factors.

This ecosystem disruption has resulted in the extirpation of several native fish species and in an imbalance in ecosystem relationships. Both State and Federal agencies have expressed the desire to restore healthy and diverse aquatic habitats.

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**Geographic Areas Affected by the Project****States:**

<input type="checkbox"/> Illinois	<input type="checkbox"/> New York
<input type="checkbox"/> Indiana	<input type="checkbox"/> Pennsylvania
<input checked="" type="checkbox"/> Michigan	<input checked="" type="checkbox"/> Wisconsin
<input type="checkbox"/> Minnesota	<input type="checkbox"/> Ohio

**Lakes:**

<input type="checkbox"/> Superior	<input type="checkbox"/> Erie
<input type="checkbox"/> Huron	<input type="checkbox"/> Ontario
<input checked="" type="checkbox"/> Michigan	<input type="checkbox"/> All Lakes

**Geographic Initiatives:**

<input type="checkbox"/> Greater Chicago	<input type="checkbox"/> NE Ohio	<input type="checkbox"/> NW Indiana	<input type="checkbox"/> SE Michigan	<input type="checkbox"/> Lake St. Clair
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**Primary Affected Area of Concern:** Fox River/Green Bay, WI

**Other Affected Areas of Concern:** Menominee River, WI

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***For Habitat Projects Only:***

**Primary Affected Biodiversity Investment Area:** Green Bay Western Shore

**Other Affected Biodiversity Investment Areas:**

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**Problem Statement:**

The need for this project is demonstrated by the fact that approximately 70% of Green Bay's west shore wetlands have been lost due to a combination of human and non-human factors. Much of this wetland provided fish spawning and rearing habitat. Tributary stream wetland habitat has also been lost. Green Bay's ecosystem has been severely disrupted by wetland habitat loss and other factors.

This ecosystem disruption has resulted in the extirpation of several native fish species and in an imbalance in ecosystem relationships. Both State and Federal agencies have expressed the desire to restore aquatic habitats vital for the support of healthy and diverse communities of plants, animals, and fish. The scarcity of top predators, such as northern pike in Green Bay, was recognized as a problem during development of southern Green Bay's Remedial Action Plan.

Studies conducted in recent years demonstrate that northern pike and other fish use habitat located over 20 miles inland as spawning habitat. This habitat has been severely degraded due to agricultural practices including nonpoint source pollution, channelization, and wetland draining. These practices continue to this time.

**Proposed Work Outcome:**

**Goal:** The specific goal of this project is to protect and restore northern pike wetland spawning and rearing habitat. A broader goal is restoration of the Green Bay aquatic ecosystem.

Wetland spawning and rearing habitat will be restored by adopting methods which have proven to be successful during past GLNPO funded projects. Habitat assessment information collected will be used to locate sites suitable for restoration and will also provide information to guide priority nonpoint source pollution projects. The data collected will also be used to justify protection of currently functional and productive wetland habitat.

**Specific Objectives (Summary)**

**Objective 1.** Northern Pike Wetland Spawning and Rearing Habitat Restoration and Protection.

The objective of wetland restoration is to restore pooled wetland and tributary stream northern pike spawning and rearing habitat. Pooled wetland restoration has proven to be an effective means of restoring functional spawning and rearing habitat, particularly in agricultural areas where wetlands have been drained. The most successful technique has been the creation of shallow scrapes adjacent to drainage ditches or small streams which northern pike use as spawning and

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migratory waterways. When these shallow scrapes are used in combination with water control structures, they serve to provide spawning and rearing habitat even during dry years when habitat would otherwise not be available. Approximately 33 acres of functional wetland spawning and rearing habitat have been restored to date. Production in similar habitat has at times exceeded 20,000 young-of-the-year northern pike per acre. An additional 5-20 acres of habitat will be restored as a result of this project.

Past GLNPO funded habitat assessment work, such as the habitat assessment work proposed for funding in this preproposal, has revealed nonpoint source pollution plays an extremely large role in destroying the viability of northern pike (and other fish) spawning and rearing habitat. Oconto County currently has an active Priority Nonpoint Source project which includes wetland habitat restoration. We will consult with Oconto County on both restoration site selection and appropriate restoration techniques. Information collected during this project will also be used to help Land Conservation Departments prioritize nonpoint source elimination activities by making them aware of areas where nutrients and/or sediment are impeding fish spawning.

Habitat restoration will be accomplished on sites which are currently in public ownership or on sites which will be purchased as a result of other acquisition projects.

Wetland restoration efforts will occur in areas identified in the 1998 and 1999 studies as having potential. Additional sites will be identified by work done under the auspices of this project in 2001. Restoration sites will be selected during the winter of 2001.

Restoration of northern pike spawning and rearing habitat inherently includes restoration of wetlands suitable as habitat for a variety of other wetland plants and animals.

## Objective 2. Habitat Assessment

Habitat assessment, along with production assessment (below), will provide a basis for identifying northern pike wetland spawning and rearing habitat needing protection (that which is currently producing relatively large numbers of fish) and for identifying areas offering potential as future restoration sites (sites with identifiable limiting factors). Habitat assessment will be accomplished by Limited Term Employees hired specifically to accomplish this task. These employees will work under guidance of a project administrator and an EPA-GLNPO approved Quality Assurance Project Plan.

Habitat assessment, for the purpose of this project, will be the collection of water temperature, dissolved oxygen, stream discharge, and fisheries data. Habitat assessment will occur over a wide geographic area. In 1999, we sampled fish populations at 87 sites within the Suamico/Little Suamico River watershed. Stream discharge was measured at most of these sites as well. At 130 locations, streams/wetlands were classified according to their utility as northern pike spawning and rearing habitat. Dissolved oxygen concentrations and water temperature were determined 130 locations. This watershed-wide sampling regimen will be followed during our proposed project.

We will focus our efforts within the Pensaukee River Watershed (159 square miles) and Little River Watershed (210 square miles)

Information collected will be incorporated into an appropriate GIS software program (ARCVIEW) and distributed to other resource management agencies via electronic and hard copy means.

## Objective 3. Production Assessment

Northern pike production assessment is a tool principally used to determine the results of completed restoration projects. It is also used to identify areas needing or lending itself to restoration and for inventorying critically important habitat which needs protection. During the production assessment process, we will accurately assess reproduction of northern pike at habitat restoration sites both pre- and post- restoration. This process will allow us to determine the success of completed restoration projects.

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We will also assess the relative production of many streams/wetlands as part of the Habitat Assessment process. During the Production Assessment phase of this project, we will focus production assessment on those sites where habitat restoration has or will occur.

**Project Milestones:**

**Dates:**

Project Start	01/2001
Hire Limited Term Employees	02/2001
Complete year 2001 field work	07/2001
complete data analysis	02/2002
select restoration sites	02/2002
restore spawning and rearing habitat	09/2002
Final Report	12/2002
Project End	12/2002

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☐ Project Addresses Environmental Justice

**If So, Description of How:**

☒ Project Addresses Education/Outreach

**If So, Description of How:**

Earlier phases of this project resulted in working relationships with those entities listed below as collaborators. Exchange of information between these groups occurred freely person to person and more formally in writing. We are currently finalizing a report pertaining to GLNPO funded work we did in the Saumico/Little Suamico River Watershed in 1998 and 1999. This report will be distributed to interested individuals, private groups, local units of government and resource management agencies. We anticipate the same or a greater degree of collaboration and information dissemination during our proposed project.

We will write and distribute a final report pertaining to the proposed project. This report will be distributed to any interested agency, private group, or private individual. We will also develop a visual presentation using slides or current computer technology, possibly "PowerPoint". This visual presentation will be presented to partnership groups and resource management peers.

Recent development of a Basin Education in the Upper Green Bay Basin will enhance outreach activities within the project area. The individual hired will make personal contacts and small group presentations. He or she will also develop and provide educational programs and materials to watershed residents and concerned agency representatives.

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**Project Budget:**

	<b>Federal Share Requested (\$)</b>	<b>Applicant's Share (\$)</b>
<b>Personnel:</b>	61,548	0
<b>Fringe:</b>	7,386	0
<b>Travel:</b>	13,000	3,421
<b>Equipment:</b>	0	0
<b>Supplies:</b>	20,000	3,421
<b>Contracts:</b>	18,502	0
<b>Construction:</b>	0	0
<b>Other:</b>	1,000	0
<b>Total Direct Costs:</b>	121,436	6,842
<b>Indirect Costs:</b>	15,406	0
<b>Total:</b>	136,842	6,842
<b>Projected Income:</b>	0	0

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**Funding by Other Organizations (Names, Amounts, Description of Commitments):**

State of Wisconsin - \$42,000. The State of Wisconsin, Department of Natural Resources is currently funding projects which are complementary to and provide cost sharing for this project. The first of these projects is the origin of northern pike habitat protection and restoration efforts on the western shore of Green Bay. It has been funded annually since 1988. The second project, Baseline Monitoring, is a recently implemented project which fits into the habitat assessment aspect of this project. These projects are fully integrated in terms of field work and partially integrated in terms of report writing.

The Wisconsin Department of Natural Resources will provide vehicles, workspace, and much of the equipment needed to support our proposed project.

The \$61,548 personnel cost noted above is needed to hire limited term employees to work only on this project. Permanent employee's time will be contributed by the Department of Natural Resources.

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**Description of Collaboration/Community Based Support:**

Town of Pensaukee - The Town of Pensaukee is within the Pensaukee River Priority Nonpoint Source Watershed project and is currently actively cooperating in protecting northern pike (and other fish) spawning and rearing habitat. In 1999, as a result of past involvement in a GLNPO funded project, the Town played a key role in a land developer granting a no cost easement to the Department. This resulted in protection of a stream course and connected wetlands. They have performed other services at reduced or no cost. We anticipate continued cooperation and collaboration.

Upper Green Bay Partnership Group - The Upper Green Bay partnership group supports the objectives of this project. The upper Green Bay Partnership Group will provide a Basin Educator. This individual will provide information to interested individuals, groups and governmental agencies.

United States Fish and Wildlife Service (USFWS) - The USFWS service engages in wetland habitat restoration projects within the boundaries of our proposed project. We will collaborate with USFWS.

Oconto County Land Conservation Department - The Pensaukee River Watershed is currently the subject of a priority nonpoint source Project. Our activities will complement the nonpoint source elimination project and we will provide habitat restoration and protection guidance.

PikeMasters - PikeMasters is a private group interested in protecting northern pike spawning habitat. During a previous GLNPO funded project, they provided volunteers and offered financial support..

During earlier phases of this project we developed working relationships with Brown County Parks Department, Brown

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County Land Use Planning Commission, Brown County Land Conservation Department, Outagamie County Land Conservation Department, Oneida Nation (Oneida Tribe of Indians), Oconto County, and the Lower Fox River Partnership Group. We will continue to foster these working relationships.